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USSR REPORT

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LIVESTOCK

ROLE OF SCIENCE, TECHNOLOGY IN LIVESTOCK SECTOR OUTLINED

Moscow EKONOMICHESKAYA GAZETA in Russian No 6, Feb 85 p 2

[Interview prepared by the Agroindustrial Complex Administration of the USSR State Committee for Science and Engineering: "For the Agroindustrial Complex"]

[Text] In the country's food program, a special place has been set aside for intensifying the role played by science. The GKNT [State Committee for Science and Engineering], the USSR Academy of Sciences, USSR Minsel'khoz [Ministry of Agriculture], USSR Minplodoovoshchkhoz [Ministry of the Fruit and Vegetable Industry], VASKhNIL [All-Union Academy of Agricultural Sciences imeni V.I. Lenin] and other ministries and departments, as is known, have been tasked with carrying out measures aimed at further developing scientific studies and accelerating the introduction into production operations of scientific achievements in the branches of the agroindustrial complex.

The solving of these tasks is being assisted by a number of scientific-technical programs implemented during the 11th Five-Year Plan, particularly the special purpose all-round program entitled "Increasing the Production of Animal Husbandry Products on an Industrial Basis." Its chief feature -- the comprehensive inclusion of all elements concerned with the production of animal husbandry products -- from the breeding and feeding of livestock to the mechanization, economics and organization of labor on the farms.

Highly Productive Livestock

In conformity with the mentioned scientific-technical program, during this current five-year plan the scientists are carrying out work directed towards the breeding of 10 new strains, 19 types, 19 lines and 15 crosses of livestock and poultry. The plans call for the development of 17 new technological processes for the production of animal husbandry products, seven of which are to be placed in operation at the kolkhozes and sovkhozes prior to 1985.

The plans for dairy cattle husbandry call for the formation of herds having annual milk yields of 5,000 or more kg per cow, with a fat content of 3.8-4 percent and protein -- 3.3-3.4 percent. Highly mechanized complexes for the production of milk and for the raising of young large-horned cattle stock will be built and tested. The use of new technologies here will make it possible to lower labor expenditures to 0.8-1.0 man-hours and feed consumption to 0.8

quintal of [illegible] for the production of a quintal of this product is man-hour. [illegible] quintals in the average of provinces throughout the country during the Ten Five-Year Plan.

New pedigree [illegible] animals are being created in beef cattle husbandry which, with proper feeding, will provide average daily weight increases during fattening in the order of 1,000-1,300 grams. The technologies already developed are making it possible to raise the weight of the animals during fattening to 550-600 kg at 15-18 months of age.

In pig farming, improvements are expected in existing types and strains and new ones are to be created such that it will be possible to achieve an average daily increase in live weight during fattening of 750-800 grams, with expenditure of 3.4 [illegible] feed units per quintal of weight increase. No radically [illegible] and very little has been introduced, and operations there will be made of new technologies which will make it possible to lower labor expenditure to 1.5-1.6 man-hours for the production of a quintal of product.

In sheep raising, new lines and plant fine-fleece breeds are being created having acquired wool yields of 2.5-3 kg and semi-fine-fleece breed with wool yields of 3-3.5 kg and an average production of 5 kg of meat per ewe.

In poultry raising, improvements are being carried out in existing strains and new pedigree [illegible] of cow [illegible] are being created having cow yielding of 350-370 eggs and more, [illegible] having annual yields of 3.7-3.8 kg.

In poultry raising, in addition to the development and introduction of new industrial technologies for the production of poultry meat and eggs, improvements will be carried out in existing strains and new lines and crosses of hens will be created. [illegible] productions of 280-300 units annually, against an expenditure of 2.3-2.4 kg of feed for the production of a dozen eggs. Under optimum conditions, broilers from meat crosses will achieve a weight of 2.2-2.4 kg at 7-8 weeks of age, against an expenditure of 1.9-2.0 kg of feed per kg of weight increase. A considerable expansion will take place in the breeding of highly productive lines and crosses of cocks, geese and turkeys and also in the technologies employed for maintaining them.

Minsukhsaas, USSR Ministry of Machine Building for Animal Husbandry and Feed Production, is the leading ministry for the mechanization of animal husbandry, is converting over to the development and delivery of sets of machines and equipment instead of individual means of mechanization, as was the case earlier.

The Feed Base

The development of animal husbandry requires a strengthening of the feed base. This is the goal of still another all-round program -- "The creation and introduction of highly productive varieties of forage crops and progressive technologies, processes for the production, procession, procurements and storage of feed in zones of the country." More than 100 scientific-research institutes and other organizations of USSR Minselkhoz, VASKhNIL, USSR Minvodkhoz, Ministry of Land Reclamation and Water Resources and 11 organizations of Minsukhsaas are participating in the carrying out of this program.

[illegible] by the end of the 11th five-year plan, the plan call for the introduction of 41 technological processes and four standards, the mastering of production operation of seven machines for the procurement and storage of feed and the [illegible] of 3 scientific-research work dealing with feed production problems. In addition, the plan call for 8 varieties of high productive perennial and annual grasses and root crops to be tested over the next testing and also of the release of 3 varieties for primary seed production.

Improvements in the technical level of feed production operations are being carried out along the following lines:

-- systems for the intensive production of feed on arable lands and hayand pasture land which will ensure a zone of the country yields of 5,000 to 7,000 feed units per hectare in the absence of irrigation and 12,000--20,000 feed units per hectare with irrigation.

-- based upon all-round mechanization, progressive technological processes for the processing, procurements and storage of feed which will ensure high quality preservation of the feed and also the production of feed for storage [illegible] on an industrial basis

-- new methods for evaluating and controlling the quality of feed and improving the standards for the principal types of feed

-- effective breeding methods and the creation based upon such methods of high productive [illegible] varieties and hybrids which meet the requirements for intensive feed production.

-- the establishment of feed production as an independent branch of agriculture.

The economic saving realized from this program, according to computation by the USSR Gosplan, amount to approximately 40 million rubles. As a result of improvements in the technology, the creation and use of highly productive pastures for the dairy and beef cattle and sheep and the organization of a green production line system, it is expected that a profit of 15 million rubles will be realized.

Results of the Years

During 4 years of the five-year plan, a large volume of work called for in the scientific-technical programs has been carried out. Under the direction of the All-Union Scientific-Research Institute for the Breeding and Genetics of Agricultural Animals [Leningrad Oblast], studies are being carried out aimed at improving the black-variegated strain of large-horned cattle. Highly productive herds of this strain have been created in leading breeding farms throughout the country. Thus, at the Petrovskiy Base Breeding Plant in Leningrad Oblast the milk yield for one [illegible] cow amounted to 4,200 kg, at the Zarya Kommunizma sovkhoz in Gatchina Oblast -- 5,200 and at the Volkhov [illegible] Leningrad Oblast -- 5,300 kg.

The breeding of a new domestic dairy strain of large-horned cattle based upon crossing of black-variegated animals with the Holstein-Friesian strain is being carried out on 40 farms, with more than 500,000 cows being involved.

The creation of five new lines of the Uzbek multi-purpose strain of beef cattle was completed in 1992. Under optimum feeding conditions the animals achieve an average daily increase in live weight of up to 1,100 g, consuming 7-8 feed units per kg of weight increase.

The Belorussian Scientific Research Institute of Animal Husbandry has completed work on the creation of a new black-variegated strain of dogs. The All-Union Scientific Research Institute of Animal Husbandry (Moscow Oblast) has completed studies on a cattle-strain type of beef dog of the large white strain. During fattening, the animals provide an average daily increase in live weight of 780 grams, against a consumption of 7.7 feed units per kg of weight increase.

The Crimean Scientific Research Institute of Animal Husbandry and Veterinary Science has created the Alyabaevskiy strain of sheep, which has meat, fat and wool productivity. The average live weight of the rams is 95-100 kg -- 55-60 and the ratio of coarse wool -- 46-48 %. At the present time, the overall number of Alyabaevskiy strain sheep has reached 100,000 head. In addition, eight new lines of sheep of the Crimean fine-fleece strain have been created.

The All-Union Scientific Research Institute of Sheep and Goat Raising (city of Ekaterinburg), jointly with farms in the Altay Kray, created the Gornoaltayskaya strain of down goats. The number of animals of this strain has reached 17,000 head. On the average, each ewe annual produces 1.5-1.7 kg of down.

The Estonian Scientific Research Institute of Cattle Raising, as a result of improvements being realized in the Holm-17 and Holm-18 crosses, has increased the overall herd productivity by 20 kgs annually.

In conformity with the basic of the scientific-technical program in the relations of feeding to agricultural livestock, the ratios for mixed feed, feed additives, premixes and whole milk substitutes have all been refined more precisely. Tests have been carried out on new feed resources and on methods for preparing feed. In particular, rations have been developed for cows having productivities of from 3,000 to 7,000 kg of milk annually, which will be a considerable reduction in the use of concentrates. In addition, ratios have been prepared for complete-ration mixtures for the fattening of young beef cattle stock. Feeding norms and rations for meat type dogs which make it possible to reduce feed consumption by 10 percent have been prepared and approved.

Since the beginning of the five-year plan, in keeping with the schedules set forth in the scientific-technical program, a site for the fattening of 1,000 head of large-scale cattle at the Svetlanskiy sovkhoz in Krasnoyarskiy Kray has been readied and the construction and start testing of farm-site for the raising and fattening of 10,000 head of young beef at the Zamoskovnyy sovkhoz in Tsaritsyn have been completed. The All-Union Scientific-Research Institute of Beef Cattle Husbandry has approved the technology employed for the raising and fattening of large-scale cattle at the Bashkir ASSR. In 1982, the use of this technology at the Tumanovskiy Complex produced an average daily weight increase in the animals during fattening of 1,022 grams. The average live weight of the cattle sold to the state was 370-38 kg, against an expenditure of 5.- quintals of feed units per quintal of weight increase.

With regard to the seed production program, a new varieties of cross, varietal, hybrid and composite varietal crosses have been under the state testing.

Methods for fertilizing maize and pasture land have been introduced in area of 1 million hectares in various zones throughout the country which ensure a productivity of 1,000-1,200 feed units per hectare. Intermediate sowing have been applied in an area of 1.1 million hectares.

Green and raw material production line involving the use of arable and natural land has been introduced in an area of 1 million hectares in the central region of the nonchernozem zone, the Ukraine and in the north Caucasus.

Work has been started for aimed at creating and utilizing specialized and highly productive cultivated pastures.

- for hayfields located in the nonchernozem zone of the northeast part of the USSR in an area of 55,000 hectares;

- for arid-prone cattle of beef strain in Kazakhstan and the north Caucasus in an area of 40,000 hectares;

- for sheep in the north Caucasus, the trans-Caucasus and Kazakhstan, in an area of 40,000 hectares.

Over the past 5 years, new technological processes have been introduced for producing hays by artificial ventilation. In 1990, this method was employed for producing 2.7 million tons. More than 1 million tons of grass was harvested. The preservation of green feed was expanded. In 1991, 2.5 million tons of silage will with chemical preservatives and other means of preservation were taken in storage and in 1992 - 3.4 million tons.

The agricultural requirements and technical tasks for the standard planning of silage and haylage storehouses, for the drying of hay with forced ventilation, for the cutting of grasses and for briquetting were approved. Work is being carried out in connection with creating a more improved system for utilizing and controlling the quality of feed.

Difficulties

At the same time, certain difficulties and shortcomings exist with regard to organizing fulfillment of the special purpose program.

The scientific-research institutes of Gosagroprom Soyuz, Gosagro, Gosagro are still not achieving adequate solutions to the problems concerned with the creation and development of new and highly productive meadows for the intensive technologies used in the cultivation and harvesting of forage crops, the transporting, loading and removal of preserved hay and the processing and preparation of feed for use.

Certain difficulties have arisen in connection with getting out the program of the central scientific research institute of feed, Vsekhsvyatskiy and Zaitsev Director I. Vasilyuk, the Udmurt Director V. Kamil'kanov and Yelabuzhskiy

Director T. Antonyan, Scientific-Research Institute of Animal Husbandry and the Siberian Scientific-Research Institute of Feed, Director I. Vorobyanko, which is still in the present time, under the threat of insufficient personnel, inadequate special purpose financing and other "objective" reasons, are not close to the work of carrying out the tasks of the program.

Some alarm is being caused by the slow rates in the production of highly productive machines for use in animal husbandry complexes. The delivery schedules for this equipment, as set forth in the program, are not being followed.

In 1983, at the Sovkhoz-Gornyak, Plant Director M. Ovsyannikov, the series production of a set of equipment for automatic milking lines will not be organized. The reason given is that the preparations for production operations are taking place.

The construction of the Sovkhozny experimental complex for the fattening of 108,000 hogs was begun but even though the program calls for interdepartmental state testing of this facility to be carried out in 1982, at the Sovkhoz-Tomilinskiy SSR in the Far East, the installation of equipment for processing livestock runoff for the purpose of irrigating agricultural land could have been completed in 1981. However, the Krasnoyarsk Zootechnical Institute Director N. Lebedev and the Krasnoyarsk Zootechnical Administration Chief E. Ivanenkov have yet to complete this work.

The scientific and production workers must spend a maximum amount of effort and energy during 1983 in order to make it so that the end of the attempt to ensure unconditional fulfillment of all of the tasks of the scientific-technical program is the period to animal husbandry and feed production.

[illegible]
[illegible] 1984-107

LIVESTOCK

INTENSIFIED LIVESTOCK PRODUCTION IN ESTONIA CALLED FOR

Tallinn KOMMUNIST ESTONII in Russian No 10, Oct 82 pp [illegible]

[Article by [illegible], secretary of the Central Committee of the Communist Party of Estonia: "Animal Husbandry Is a Shock Front"]

[Excerpts] The detailed program for the further rise in the well-being of the Soviet people adopted by the 26th CPSU Congress encompasses the most diverse areas of life. Priority attention is paid to an improvement in the supply of food for the population, because people's health, mood and labor activity depend on this.

An increase in meat and milk production acquires major importance in our republic.

During the 10th Five-Year Plan agricultural workers in the Estonian SSR have made significant advances. As compared with the preceding five-year plan the average annual output of grain crops increased by 17 percent and the production of meat, milk and eggs, by [illegible] and 12 percent respectively. The milk yield per cow averaged 3,[illegible] kg, which was 200 kg more than during the 9th Five-Year Plan. A total of 136 quintals of meat and 809 quintals of milk per 100 hectares were produced in the Estonian SSR in 1980. In these indicators of production intensity our republic occupies the first place in the country. The yield of agricultural crops also rose.

Appreciating the achievements of agricultural workers, at the same time, in December of this year the plenum of the Central Committee of the Communist Party of Estonia noted that the republic did not cope with the assignments and socialist obligations of the 10th Five-Year Plan for the production of grain, potatoes, vegetables, milk and meat.

According to the Basic Directions of the Economic and Social Development of the USSR for 1981-1985 and for the Period Until 1990 approved by the 26th CPSU Congress in the Estonian SSR during the 11th Five-Year Plan an average of 27[illegible],000 tons of meat (in live weight) and 1.[illegible] million tons of milk will have to be annually procured in all categories of farms, which is [illegible] and [illegible] percent respectively more than during the 10th Five-Year Plan.

On sovkhozes and kolkhozes the production of meat must increase by [illegible] percent, of milk, by 10.[illegible] percent and of eggs, by [illegible] percent. To accomplish this task, it is necessary to increase the livestock population and to raise its productivity,

1 kg of grass granules, 1 to 1.5 kg of straw and mixed feed according to the category of productivity were fed to a sow daily. Every bull of the experimental group received 17 kg of preserved grass feed and an unlimited amount of straw daily. At times weight gains exceeded 1 kg.

Meat procurement assignments are especially stepped-up. Production intensification, that is, increase in the daily weight gains in fattening livestock, decrease in the expenditures of feed per unit of output, increase in the delivery weight and improvement in other quality indicators, is of the greatest importance here. The results of the 10th Five-Year Plan in this part were unsatisfactory. Whereas during the 9th Five-Year Plan the average daily weight gains in fattening hogs were 471 grams, during the 10th Five-Year Plan, 447 grams and in 1980, 442 grams. The expenditures of feed on the production of 1 quintal of pork were 334, 371 and 367 fodder units respectively. During the 10th Five-Year Plan, as compared with the preceding five-year plan, 38.4 percent of feed more was spent on pork production. The population of hogs increased by 42.8 percent and pork production, by only 30 percent. A total of 121 kg of pork per hog of the stock available at the beginning of the year were produced during the 9th Five-Year Plan and 111 kg, during the 10th Five-Year Plan. The average age of a hog sold from the fattening section was 284 days in 1980, which was over 60 days more than the normal age.

As a result, the profitability of hog breeding is now twice as low as in 1975. Of many farms hog breeding even incurred losses. In 1981 this sector was unprofitable at the Sootaste Sovkhoz in Kadiyskiy Rayon, at the Kaap'varve Sovkhoz in Valgeskiy Rayon and at the Vara Sovkhoz in Tartuskiy Rayon. In 1980 the average daily weight gains in hogs more than 1 months old were only 189 grams and 87 fodder units were spent on the production of 1 quintal of pork, which exceeded zootechnical norms almost twofold. Often hogs were fed only once a day and sometimes even every other day. Similar cases also occurred at the Verioka Sovkhoz, at the Narva Sovkhoz, at the Kaap'varve Sovkhoz and so forth.

All this is none other than a gross violation of the elementary laws of management. After all hog breeding is a sector where, if feed is sufficient, the population of animals can be increased rapidly. Otherwise, as the example presented above shows, feed, which could be allocated for the production of additional products, is spent for nothing and hogs of a low level of fatness are sold to the state. One is only surprised that the Administration of Animal Husbandry of the Ministry of Agriculture and rayon agricultural administrations confine themselves to stating the situation and do not stop this obvious mismanagement.

In 1980 the profitability of hog breeding at the Vykhanu Kolkhoz in Vyruskiy Rayon comprised 96.2 percent. A total of 413 tons of pork were produced there and the daily weight gains in hogs aged more than 2 months were 541 grams. The Saverna Kolkhoz, the Pylva Kolkhoz, the model support base Sovkhoz, the Vyavke-Maar ve Kolkhoz, the model support Viinistiy Sovkhoz-Tekhnikum and so forth also develop hog breeding successfully. On these farms hog breeding is constantly in the center of attention of the management and party organizations, socialist competition is organized well, high-grade feed is used for the fattening of hogs and, in addition to mixed feed, the ration includes potatoes, green fodder, grass meal and food waste.

More significant results can also be attained in beef production. It is important to intensify the fattening of large-horned cattle and to sell it well-fattened. Many farms followed such a path. Whereas during the 9th Five-Year Plan the average

delivery weight of late-hatched cattle was 40 kg, during the last five-year plan it reached almost 44 kg. During the current five-year plan this indicator should rise to no less than 450 or 460. Farms in Kaliningrad and Kaluga Oblasts have already reached such a level. Agricultural administrations and farms in Smolensk, Vladimir, Kuybyshev and Tambov Oblasts, where the average delivery weight of late-hatched cattle is still within 400 to 420 kg, will have to carry out large-scale work.

In September of this year the Plenum of the Central Committee of the Communist Party of Belorussia noted that during 7 months of this year the sale of livestock and poultry to the state was reduced by 3 percent as compared to last year. At established procurement prices livestock procurement occurred in Kaliningrad and Vitebsk Oblasts by 10 percent and in Vladimir and Kuybyshev Oblasts by 5 percent. At the same time, milk yields per cow were reduced by 1 kg in the republic.

In order to successfully cope with the assignments of 1981 and of the 11th Five-Year Plan for the production and sale of livestock products in the state, it is first of all necessary to seriously improve the production of feed and to more fully provide public livestock, as well as livestock belonging to citizens, with it.

For various reasons during the last decade we succeeded in procuring only about 80 percent of the necessary feed, including 70 percent for the winter period of livestock. The basic part was covered by the ever increasing amount of purchased concentrated feed. In the last few years its share in the ration of the milch herd reached 30 percent, which has a negative effect on animals.

The specific tasks for the further development of plant growing outlined at the last Plenum of the Central Committee and at the 26th Congress of the Communist Party of Belorussia should be systematically accomplished on all farms. By the end of this five-year period plans are made to procure 12 percent grass feed in terms of hay more than the annual average during the past five-year plan, primarily as a result of an increase in the yield of grass and an improvement in the quality of feed. In particular the yield of grass should be increased to 30 or 40 quintals of hay per hectare and 50 quintals were obtained in 1980. The possibility of obtaining such a harvest is confirmed by the results of work of many farms. For example, last year the Belorussian Oblasts have gathered 60 quintals of hay per hectare and the Latvian Soviet Republic have, 70 quintals. Unfortunately, such harvests are not yet obtained everywhere. Therefore, it is necessary to greatly improve the organization of grass feed. One-half of the grass sown with perennial grass in 2 to 3 years of the grass now with lucerne, about 30 percent of the cultivated pastures and 10 to 15 percent of the cultivated hay land will have to be annually renovated or restored later. The plans for the renovation of meadows must be fulfilled without fail.

A "grass conveyor" from early-, medium- and late-ripening grass crops should be organized on every farm. In the meanwhile late-ripening grass "lingers" in a number with late clover predominating. Owing to the shortage of equipment, grass is not harvested in time as a result of which the assimilability of feed and the content of protein is at its lowest. A structure of crops including 30 percent of early-ripening, 50 percent of medium-ripening and 20 percent of late-ripening grass seems the most efficient. This will make it possible to make harvesting at earlier time and to always have fresh grass. The second hay harvest is carried out 4 to

of days after the first. Grass mowed at an early phase of development is well assimilated by animals and is rich in protein and mineral substances. Many farms which do not have a conveyer system of perennial grass, now begin mowing [illegible] the fall months, when many field operations are carried out simultaneously.

This problem was discussed repeatedly. It was raised at the 16th Plenum of the Central Committee of the Communist Party of Estonia and at conferences of [illegible]. However, the proper conclusions were not at all drawn everywhere. For example, this year the [illegible] Kolkhoz in [illegible] Rayon has begun hay mowing only on 20 June, because late-ripening grass exclusively is grown on this farm. For the same reason the [illegible] Kolkhoz and the [illegible] Kolkhoz in [illegible] Rayon and the [illegible] Sovkhoz in Valga Rayon have not yet begun grass mowing on 25 June.

Every year it is necessary to carry out several hay harvests on 150,000 to [illegible] hectares of cultivated meadows. The first should begin early in June. A repeated mowing of cereal grass presupposes its intensified topdressing, primarily with nitrogen fertilizers. Since a significant increase in the deliveries of mineral fertilizers is not foreseen, it is necessary to change the crop structure and to sow more papilionaceous grass crops. From 40 to 50 percent of the total area of grass land (now 25 to 30 percent) should be allocated for the latter. During the five-year plan lucerne areas should be expanded from 21,000 to 40,000 hectares. This will make it possible to increase the yield of grass, as well as the crude protein content, owing to the expansion of the areas sown with papilionaceous grass and a better fertilization of cereal grass.

A reduction in losses during the harvesting and storage of feed increases its yield and nutritive value. For this purpose the practice of feed preservation will be continued during the current five-year plan so that during its concluding year the entire silage and one-third of the haylage may be stored with the use of chemical preservatives. A total of 60 percent of the silage will be subjected to preservation in 1986.

Feed preservation reduces the losses of nutrients by 10 to 15 percent and, as a result, makes it possible to produce 30,000 tons of milk. Owing to the greater nutritional value and the better assimilability of preserved feed it is possible to additionally obtain 15,000 tons of milk. A widespread application of preservatives is still hampered by the shortage of batchers. The Estonian SSR State Committee for Supply of Production Equipment for Agriculture should search for the possibility for their output.

To solve the problem of feed protein, it is necessary, along with an expansion of the area sown with papilionaceous grass, to increase the areas under new [illegible] fodder crops to 200,000 hectares by the end of the five-year plan. The cultivation of rape has begun on the first 220 hectares this year. Areas sown with winter rape occupy more than 400 hectares and with [illegible] hectares.

The efficiency of utilization of grass feed in animal husbandry is lowered by its poor quality and inadmissibly big losses during storage, owing to which we are annually deprived of about one-third of the produced feed and damage the health of cows.

The Central Committee of the Communist Party of Estonia and the Estonian SSR Council of Ministers have developed a number of measures to improve the patronage system over rural areas, especially in their assistance in the construction of agricultural projects. The republic staff is engaged in the coordination of patronage assistance. Similar staffs operate in cities and towns.

...ave done their part in assistance of city workers. The collectives of industrial enterprises, organizations and educational institutions have fully realized the necessity of the situation and do their duty to help kolkhozes and sovkhozes. It is possible for successful completion of the assignments and other tasks without delay. All city enterprises and organizations are taking active part in the patronage work.

The results of work of investigation presented at the latest session of the Soviet were examined for the current period. A number of items in particular, have not come with their results to the decision of Soviet. Last year, the Ministry of Agriculture, Rayon agricultural administration and agricultural association must establish permanent annual control so that livestock farms may be put in order before the beginning of the spring period.

Problems connected with the production and processing of livestock products should constantly be in the center of attention of party organizations of farms and rayon party committees. They are solved systematically and purposefully with due regard for the long-term period. In Zavodsky, Kamyshevsky and Vladimirsky rayons these problems connected with the production of agricultural products as well as the level of management—in rayon party committees, rayon executive committees, agricultural bodies, farms and departments.

Practice shows that the production of agricultural products is a specific rayon directly depends on the level of party leadership and on the work of agricultural bodies. The activity of the Yaroslavl rayon party committee serves as a typical example in the production and sale of meat and milk to the state as in...ribes it a short time.

After the experienced party worker I. Ivan was sent to the Yaroslavl rayon committee of the Communist Party of Estonia. The rayon nurses the course of increase in the production of livestock products of...ekhozes and sovkhozes. This is all. It was to it that the raising of agricultural...ies was intensified and real practical attention to the strengthening of the fodder base. With the use of additional organic fertilizers the fertility of fields was raised. The areas under fodder crops were brought into line with the needs of animal husbandry. Socialist competition was organized in a new way. The skillful selection and disposition of cadres of managers and specialists promoted good results.

As a result the rayon increased the production of basic products, milk and meat. Whereas in 197[illegible] on seven farms in [illegible] rayon milk yields per cow did not reach [illegible],000 kg, in 1980 they exceeded this target on all farms. At the same time, the productivity of cows increased by [illegible] kg on the [illegible] kolkhoz.

The production of milk and meat also rose considerably on the kolkhoz imeni [illegible], on the [illegible] kolkhoz, on the experimental [illegible] sovkhoz and in others. An increase in the production and sale of livestock products to the state is the most important task of the rayon. Moral stimuli and socialist competition among livestock breeders play a positive role.

Rural workers in [illegible] and [illegible] rayons—winners in the all-union socialist competition among animal husbandry workers for a successful wintering of livestock and an increase in the production and purchases of livestock products during the winter period of 1980/81—also began the 11th Five-Year Plan successfully. The collectives of seven agricultural enterprises in our republic achieved the same recognition.

At the same time, we must not fail to note that some party organizations do not work with sufficient initiative and do not manifest proper demands with respect to farm managers and specialists. The farms where less than [illegible],000 kg of milk per cow were obtained last year include the [illegible] sovkhoz in [illegible] rayon. The management and party organization of this sovkhoz solve the problems of selecting personnel and of ensuring labor discipline at sections without the proper consistency. The management and party organization of the [illegible] kolkhoz in [illegible] rayon were not able to achieve elementary order on the farm.

A decisive intervention of rayon party committees and agricultural organs is needed in such cases.

The success of many kolkhoz and sovkhoz collectives can be attributed to the fact that workers are given detailed explanations of the tasks facing them and suggestions and advice on how to overcome existing difficulties. In brief, a sense of ownership and responsibility is instilled in them. At the same time, production conferences, meetings in small subdivisions and a direct communication between managers and their subordinates are the basic forms of work. An efficient system of labor organization and wages is combined with concern for the needs of workers and their [illegible] and moral incentives.

Party and trade-union organizations on many farms should pay more attention to the organization of socialist competition, keeping in mind that it is one of the striking manifestations of the new attitude toward labor.

Moreover, even the most improved system of competition cannot replace live organizational work and a creative approach to it. The order of the Red Banner of Labor [illegible]—that is a kolkhoz which used only traditional forms of labor competition for so long [illegible]—recalls last summer. At that time farm managers appealed to the mechanizers in hay procurement to work with a full return and to include time on days when the weather was good. However, they did not confine themselves to the appeal alone. Every evening kolkhoz managers went to the localities, took interest in the course of work and gave a bonus, which, true, as compared with wages, was more of a symbolic nature, to the hay procurement officials that distinguished themselves the most. The high intensity of the competition that followed produced

[illegible] unexpected [illegible] not [illegible] organizational [illegible]. [illegible] [illegible] [illegible]

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establish a new system of social relationships in the rural areas, relationships which are bringing about the complete elimination of class distinctions in Soviet society."*

The victory of the Leninist program for the industrialization of the country and the collectivization of agriculture was of permanent social-economic importance. It provided a real possibility for creating a strong foundation for socialism in the cities and countryside and for strengthening the alliance between the working class and the peasantry and moral-political unity among all Soviet people.

Subsequently, under the conditions of triumphant socialism, the industrialization of the country and the development of domestic machine building made it possible to strengthen the material base for agriculture and its associated branches and to develop these branches in an intensive manner.

The overall volume of industrial output achieved in the USSR during 1966 surpassed the 1940 level by a factor of 33, including in the RSFSR — by 30%, the Ukrainian SSR — by 28, Belorussian SSR — 72%, Kazakh SSR — by a factor of 4.2 and so forth. At the same time, increases took place in the production of agricultural products. Since the formation of the Union of Soviet Socialist Republics, agricultural production has increased by a factor of 3.2. In particular, this branch of the national economy developed at an especially rapid rate in areas of the country which formerly were considered to be backward. Thus gross agricultural output in the Turkmen SSR increased by a factor of 11.7, Kirghiz SSR — 10.6, Uzbek SSR — 11.6, Armenian SSR — 4.7, Azerbaijan SSR — 4.3, Georgian SSR — 3.5 and in the Kazakh SSR -- by a factor of 2.6. As a result of the consistent implementation of Lenin's cooperative plan, large-scale and highly mechanized socialist agriculture was created in the USSR. At the present time, the country numbers approximately 35,400 kolkhozes, almost 12,600 sovkhozes and 4,600 inter-farm enterprises and organizations. With each passing year, further improvements are being realized in the technical equipment being made available for the carrying out of agricultural work. By the beginning of 1966, the country's kolkhozes and sovkhozes had at their disposal 2.3 million tractors, 721,000 grain harvesting combines and 1.6 million trucks. In addition, substantial increases had taken place in mineral fertilizer deliveries and in the areas of reclaimed lands.

During this modern stage in the NTR [machine technical] revolutionary scientific technical revolution], the rates for the planned conversion of agriculture over to an industrial basis have been accelerated considerably. This in turn is promoting the formation and accelerated development of those branches of industry which provide agriculture with the means of production and which process its products. At the same time, production-economic relationships between agriculture and the appropriate branches of industry are being expanded and strengthened. As noted in the decree of the CPSU Central Committee entitled "The 50th Anniversary of the Formation of the Union of Soviet Socialist Republics": "Profound changes in the social make-up, culture and living conditions of the kolkhoz peasantry in the Soviet republics are organically linked to the implementation of Lenin's national policies. The solving of the

* Brezhnev, L.I. "Leninskim kursom. Rechi i stat'i" [Following the Leninist Program. Speeches and Articles]. Moscow, 1970, Vol. 2, p 491.

food program and comprehensive improvements in agricultural production. The culture of farming and of animal husbandry are today considered to be most important economic and political tasks. The carrying out of these tasks requires a further strengthening of the logistical base for agriculture, the development of agroindustrial integration, improvements in the training and retention of personnel and improvements in the working and living conditions in the rural areas"*.

The agrarian policy carried out by the CPSU, its principal trends and the implementation mechanisms always reflect the specific stage of communist construction. The peculiarities of the party's modern economic strategy with regard to the development of agriculture and its associated branches are embodied in the USSR food program for the period up to 1990, adopted during the May 1982 Plenum of the CPSU Central Committee. It opens up a new stage in the development of the country's agriculture and it outlines the prospects for the development of the agroindustrial complex and its foundation — agriculture — and it defines the specific contribution to be made by each republic in solving the program.

The development of the USSR food program for the period up to 1990 became possible owing to the consistent implementation of the agrarian policy, the basic principles of which were developed during the March 1965 Plenum of the CPSU Central Committee. During the course of implementing this policy, the logistical base for agriculture was changed radically and qualitative improvements introduced. During the 1966–1980 period, the power-worker ratio in the branch increased by more than threefold, the area of irrigated and drained lands — by a factor of 1.7, mineral fertilizer deliveries were increased by threefold. During these years, specialized livestock complexes and large poultry factories with an industrial production technology were placed in operation and highly efficient inter-farm and agroindustrial enterprises and associations were developed. As a result, labor productivity at the kolkhozes and sovkhozes increased by almost twofold.

The implementation of measures prepared in 1965 for developing the social-economic conditions for production produced a substantial increase in agricultural output. Over the past three five-year plans, the average annual gross output of the branch increased by a factor of 1.3, including grain — from 130 to 200 million tons, meat (in dressed weight) — from 9.1 to 14.4 million tons, milk — from 61 to 91 million tons, eggs — from 29 to 61 billion, vegetables — by a factor of 1.6, fruit and vegetables — by a factor of 1.6. The increase in agricultural production during the mentioned period systematically exceeded the growth in the population and, as a result, the average annual gross agricultural output per capita increased by 26 percent.

Extreme importance is attached to emphasizing the point that following the March 1965 Plenum of the CPSU Central Committee a great amount of work was carried out in connection with the further formation and development of all branches of the agroindustrial complex. In the agrarian sector of the economy, the process of division of labor, which was accompanied by the formation of new branches, developed at an intensive pace. At the same time, inter-branch

* In the 60th Anniversary of the Formation of the Union of Soviet Socialist Republics. 14 February 1982. Decree of the CPSU Central Committee. Moscow, 1982, p. 10–11.

[illegible] relationship with [illegible] and economic and [illegible] material. Structural [illegible] for inter-branch integration too sharp. In essence, a number of large branches were created [illegible] water management and land reclamation, machine building for animal husbandry and feed production. The [illegible] feed industry which increased its production by a factor of 4.4, [illegible] microbiological industry, [illegible] construction, equipment repair and logistical support for agriculture. In addition, the [illegible] Inter-branch Production Scientific Association Soyuzkormbelok was formed.

Tractor and agricultural machine building, the transport system and the food industry [illegible] fixed productive capital increased by a factor of 1.7 during the period under review were developed at an intensive pace based upon technical re-equipping. The network for wholesale and retail trade in agricultural products and in the output obtained from the processing of these products was further developed. A multi-branch system [illegible] which was oriented towards increased agricultural output, the efficient processing of agricultural products and the timely delivery to the consumers of the finished products and in the required assortment. The logistical base that has been created for the country's agroindustrial complex made it possible to assign socio-economic tasks to the agrarian sector of the economy and this was reflected in the food program.

Recognized as a logical extension of the agrarian policy during this new stage is the construction of communism, the food program at the same time appears as a real step being taken in the planning system for a single agroindustrial complex, an optimum and rational structure for which is a most important prerequisite and principal condition for the successful solving of the program. On the other hand, the disproportions which took place in the development of the branches of the agroindustrial complex, as noted during the plenum, served as one of the causes of the delay in solving the problem. Thus the principal item for implementing the USSR food program was related to the [illegible] proportional and balanced development of the agroindustrial complex and improvements in administration, planning and economic stimulation in all of its branches with maximum orientation of production towards achieving high final results.*

However, before analyzing the question of the specific disproportions, the measures for eliminating them and the trends for interrelated and balanced development of the agroindustrial complex, we believe that a description should [illegible] be provided of the branch structure of the national economic agro-industrial complex.

The APK [agroindustrial complex] the essence of which according to a definition provided by VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin] Academician V.S. Tikhonov "...appears as a totality of a number of national economic branches specializing in the production of agricultural goods, processing them into objects of final consumption and supplying them to the consumers and also in the production of the means of production for the mentioned branches"** consists of the following three principal sectors of

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* "Prodovol'stvennaya programma SSSR na period do 1990 goda i mery po yeye realizatsii." [USSR Food Program for the Period to 1990 and Measures for Implementing It] Moscow, 1982, p 3.

** V. S. Tikhonov. "Sushchnost' agropromyshlennogo kompleksa -- vazhnyy ekonomicheskiy [essence of the agroindustrial complex -- important economic problem] [illegible] pp 3-7

[illegible]

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[illegible] product cannot be viewed as a unique standard. However, it describes a [illegible] toward structural improvement in the agroindustrial complex.

In recent years a progressive tendency has been observed in the structure of the USSR's GNP which reflects an increase in the proportion of capital-producing branches and also branches which process agricultural products and provide production-technical services for the branch. Thus the proportion of agriculture with regard to the overall amount of final product decreased from 24.1 percent in 1960 to 20.2 percent in 1970 and to 19.4 percent in 1975. At the same time, the proportion of capital-producing branches increased from 14.2 percent to 17.4 and 17.8 percent respectively. An increase took place in the proportion of the food and light industry and also in the sphere of turnover. Nevertheless, the main portion of the cost of the final product of the food complex of the USSR is being created at the present time in agriculture. It is in this sphere that the principal portion of the GNP workers are engaged.

The experience of countries having a developed GNP with a comparatively balanced structure reveals that the successful functioning of multi-branch agroindustrial production assumes first of all a proper balance during all of the production stages in terms of the volume of products produced and also resources. In addition, the activities of all branches of an GNP must be oriented toward achieving a single final goal. In such a case the functioning of each stage and each element of it must promote a more complete disclosure of the potential of each stage with which it is associated. With regard to the capital-producing branches their production volume must be determined based upon the most complete satisfaction of the requirements for production resources of those branches for whom they work.

One basic instrument in the food program calls for the planned formation of an agroindustrial food complex for the country, which is characterized by proportional development of all of its branches, a higher and progressive logistical base, an accelerated development for those production sphere and stages which lag behind at the present time.

Which spheres of the GNP and branches of these spheres are lagging behind in their development at the present time? First of all, mention should be made of agriculture directly, the very core and central element of the GNP. This is stressed in the branch chapter and in the food program. Agriculture -- the producer and supplier of the predominant bulk of food goods. In the total turnover of food goods, agriculture in terms of value increases the overwhelming portion. The scales of agricultural production and the volume and structure of agricultural output affect the rates and proportions for the functioning of many other branches of the GNP and particularly the processing industry. In this regard, a vital task is that of accelerating the rates for development and achieving greater stability for agricultural production.

The food program calls for an acceleration in the rates of growth of agricultural production. The urgency of this task is further emphasized in the

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[illegible] Antonov A. Letin. "Final product of the agroindustrial complex." VOPROSY EKONOMIKI, 1977, No 1, p 91.

[illegible] during the 1970's is the rate of the development of the state. [illegible] increased considerably. Compared to the pre-1970 period when the rate of growth of gross agricultural output amounted to [illegible] percent, during the 1971-1975 period -- [illegible] and during the 1976-1980 period -- approximately [illegible] percent. It is estimated that production must be increased by [illegible] rate in order to satisfy the country's increasing requirements for grain and also for the purpose of creating the required state reserves. The average annual production of grain during the Ten-Year Plan compared to the average annual production during the Ten-Year Plan must be increased by [illegible] percent.

[illegible] higher rates are called for in the case of meat production. The meat production volume during the Ten-Year Plan must increase by [illegible] over the Ten-Year period to [illegible] percent. The increase in the production of animal husbandry products must be achieved mainly by raising the productivity of the livestock. It must mentioning that the increased [illegible] in the average milk yield per cow to 50-60 kg and in the average gain weight of young, [illegible] cattle soon surpass by a considerable degree the corresponding increases achieved in the collective and sovkhoz during the last Ten-Year Plan (1971-1980). In this regard, considerable efforts will be made to increase the production of feed.

A change in the structure of production directly with agriculture is [illegible] achieved through changes in the trend of capital investment. This will [illegible] overall growth of [illegible] percent in the volume of capital investments in the production sphere during the Ten-Year Plan compared to the Ten-Year Plan. The specialization of feed production and feed preparation will increase by [illegible] percent. This will make it possible to raise substantially the production of mixed feed in the overall composition of concentrated feed. At the present time, as is known, roughly 13 million tons of grain are used annually. Of this amount, only approximately one half is the [illegible] grain, processed into mixed feed. The remaining portion is going to the livestock in pure form not balanced with other important components and additives. Meanwhile, the data provided by scientific research organizations and leading enterprises reveals that the effectiveness of a unit of mixed feed is 1.5-2.0 [illegible] higher than that of pure grain. The planned development of the mixed feed industry will make it possible to utilize more completely this particular [illegible] important feed reserve. This will serve to promote the creation of a [illegible] feed base and improve the quality of the feed and, in the final analysis, the productivity of the animals. Moreover, [illegible] animal productivity improvement and increase will be realized in the output of products.

Although agriculture is a central element of the national economy, nevertheless the final [illegible] of the country will be realized only with the condition of active participation by all of the other spheres of interrelated agroindustrial production [illegible] producing and processing branches. It must be mentioned that under modern conditions the participation of the [illegible] producing sphere in the [illegible] structure of the [illegible] of labor available in agriculture, a structure which does not provide the [illegible] for all-round mechanization of agricultural production or the [illegible] of industrial technologies. It is for this reason, [illegible] substantial growth in

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* [illegible] "On Food Program of the USSR," Moscow, [illegible]

fixed productive capital in agriculture, that the proportion of manual labor in the economy is still considerable and that labor expenditures for the production of a unit of output are decreasing only slowly, as a result of which many farms are experiencing a deficit in labor resources, with this deficit often increasing.

The need for an accelerated increase in the level of technical equipping of agriculture derives also from a reduction in the number of workers engaged in agriculture and it is anticipated that this process will continue in the future. Under such conditions, only a complete system of machines, one which will make it possible to completely mechanize all of the technological processes in farming and animal husbandry, will be able to compensate not only for the losses in manpower but in addition ensure more complete utilization of the fertility of the soil and reduce current losses in agricultural output.

Meanwhile the mastering and production by industry of the types of machines required for the all-round mechanization of agriculture are still being carried out slowly. Only approximately 60 percent of the overall number and types of machines and devices included in the machine system for all-round mechanization are presently in series production. The requests by farms for deliveries of the principal types of machines, including tractors, are being satisfied by only 50-60 percent and in the case of certain types of agricultural machines the degree to which the kolkhozes and sovkhozes are being supplied with them is even lower. The production of sets of attachable machines and implements continues to lag behind and this is lowering considerably the output of the tractors in use. Thus, in agriculture throughout the country as a whole, the ratio (in terms of value) between tractors and all agricultural machines in use at the beginning of the 1980's was roughly 1:1.4. At the same time, experience reveals that at kolkhozes and sovkhozes where this ratio equals 1:2 or 1:3, the output per tractor is roughly 35 percent higher.

The above-mentioned and other shortcomings in the machine-producing sphere of the APK require substantial changes in the technical and economic policies. In particular, we are of the opinion that those industrial branches which supply agriculture with machines and equipment must increase their production of all-round technical-technological systems which make it possible to introduce at an accelerated tempo and, in a number of instances, to complete the all-round mechanization of agricultural production. Ideally, the development of the logistical base for those branches which supply agriculture with machines and machine systems, taking into account the requirements presented by the consumer for the industrial means of production, should also be accelerated.

Here an adverse effect is also exerted by the low quality of machines delivered and by the degree of their reliability and durability. Moreover, the kolkhozes and sovkhozes receive approximately 200 types of machines and implements. As a rule, these are complicated and large units of equipment such as combines in a dismantled or semi-dismantled form. Their assembly, which is carried out in workshops which are ill-suited for the purpose, is accompanied by considerable labor expenditures for putting the equipment in working condition. In this regard, an important trend in technical policy in the area of agricultural machine building is that of achieving maximum improvements in the quality of the machines, mechanisms and materials being supplied to agriculture.

Obviously, the production of new, more powerful and more productive equipment must not be accompanied by an increase in cost per unit of its useful effect and increases in the prices for new types of equipment, for industrial means of production on the whole and for services must not exceed to a considerable degree the rate of growth in the procurement prices for the agricultural products as often occurred during the years of the Ninth and Tenth Five-Year Plans.

During the 1966-[illegible] period the price per unit of power in a tractor [illegible] an appropriate set of machines increased by [illegible] percent, per unit of mixed feed — by a factor of almost [illegible] and per unit of mineral fertilizer applied — by a factor of [illegible]. The cost for the construction of one place for large-horned cattle increased by a factor of [illegible] and for hogs — by a factor of [illegible].*

Naturally, the existing situation could not but result in adverse consequences with regard to the development of the kolkhoz and sovkhoz economies. The material expenditures of an industrial nature of which are gradually increasing. The production cost level for the agricultural products increased considerably and as a result the profitability level of the farms decreased. Thus the production cost levels for grain, raw cotton and sugar beets at kolkhozes in 1980 exceeded the corresponding indicators for 1965 by a factor of [illegible], sunflowers — [illegible] and potatoes — by a factor of [illegible]. The production cost levels for most types of animal husbandry products increased by more than twofold**. In those instances where the increases in the procurement prices for agricultural products lagged substantially behind the growth in their production costs, the amount of net income realized invariably decreased and the level of production profitability fell. Compared to the 1966-1970 period, when the level of production profitability at kolkhozes throughout the country amounted to an average of [illegible] percent, during the 1971-1975 period it equalled [illegible] and during the 1976-1980 period — [illegible] percent. A similar situation prevailed at the sovkhozes. An increase also took place here in the number of low profitability and unprofitable farms.

As a result, subsidies which the March (1965) Plenum of the CPSU Central Committee granted to kolkhozes and sovkhozes for the purpose of ensuring the conditions required for profitable operations in all branches of production were redistributed in favor of the industrial branches. In this regard, the May (1982) Plenum of the CPSU Central Committee adopted a number of decisions, the realization of which is creating more favorable conditions for cost accounting activities by the kolkhozes and sovkhozes, for raising production profitability and for implementing expanded reproduction at the required rates. On 1 January 1983 the procurement prices for the principal types of agricultural products are being raised. At the same time, bonuses are being established for adding on to the procurement prices for products produced under the conditions of unprofitable and low-profitability farms. The additional expenditures by the state for these purposes will amount to [illegible] billion rubles annually and this will

* See: "Natsional'nokhozyaystvennyy agropromyshlennyy kompleks. Teoriya i praktika" [National Economic Agroindustrial Complex. Theory and Practice], Moscow, [illegible], p [illegible].

** See: National Economy of the USSR in [illegible], Moscow, [illegible], pp [illegible]; National Economy of the USSR in 1980, Moscow, 1981, p [illegible].

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this creates well-known difficulties with regard to the purchase of young pigs by the population. But could it be that it makes sense to sell sows to those families which possess definite skills in the animal husbandry culture, such that they can produce young stock for supplying to neighbors as is being done at the Shilovichi sovkhoz in Volkovysskiy rayon in Grodno Oblast?

Feed is the chief problem and chief difficulty of private plot animal husbandry. What comprises the forage balance of the private herd? In 1981 the kolkhozes and sovkhozes presented the population with 4.7 million hectares of natural haying land and more than 10 million hectares of pasture land and in many instances for an extended period of time. In the form of payments in kind, 7.1 million tons of grain, 2.2 million tons of hay and 1.8 million tons of straw were issued and sold. Were these amounts large or small? Unfortunately, they were not very large — 2.2 quintals of feed units per standard head of livestock, only 0.4 quintals of feed units more than in 1970.

There is still one source of forage — the sale to the population of concentrates from the state resources, more often than not in exchange for milk and meat purchases — the so-called market fund. Over a period of 5 years, it increased by 2.7 percent. But there was one painful fact. In all of the union republics, the 1981 plan for the sale of mixed feed to the population remained unfulfilled.

One can understand the position of the local organs which, under conditions involving a shortage of concentrated feed, are striving first of all to satisfy the requirements of public animal husbandry. However another fact is also obvious: the great amount of indebtedness associated with the sale of mixed feed for animal husbandry products already procured from the population is undermining the foundation for relationships between the procurement organizations and the peasant farmyards. A requirement exists for guaranteed and sound norms for the sale of mixed feed for products procured. A peasant must be assured that the livestock or milk which he sells to the state will determine the volume of concentrates which he will obtain for further production. Indeed the reverse side of these and other areas of confusion with regard to feed is the annual feeding of millions of tons of baked bread to the livestock.

It is obvious that the most correct system operates efficiently in those areas where there is a desire to use it and where there is a thorough and genuinely state understanding of the requirements of a family farmstead. We have many such rayons and villages. For example, let us take the Rodina Yakuba Kolasa kolkhoz in Stolbtsovskiy rayon in Minsk Oblast. Here the feed lands are used in a clever and prudent manner. Electrically fenced cultivated pastures are made available for grazing the private livestock and for procuring hay — improved hayingland. In addition to payments in kind, the administration issues additional feed free of charge for the raising of heavy-weight livestock. Thus it comes as no surprise to learn that for every 100 farmyards at the kolkhoz there are 74 cows, 194 hogs and 71 sheep.

Positive experience in stimulating the operation of private plots is also to be found in other areas of Belorussia, in Odessa and Lvov Oblasts in the Ukraine and in Estonia. In addition, increases have taken place in the number of livestock being maintained by the population in Kostov, Kurgan, Sverdlovsk and Chelyabinsk Oblasts and in Stavropol and the Maritime Krays in the Russian Federation.

The raising of livestock and the procurement of milk based upon agreements between the population and kolkhozes and sovkhozes are undergoing further development. During 4 months of 1985 alone, 2.5 million tons of milk or twice as much as during the same period in 1981, were procured in conformity with such agreements. The volumes of livestock procurements will also increase.

Such a system calls for mutual obligations by the partners to the agreement. A family invests its labor and obligates itself to sell meat or milk at the procurement prices to a kolkhoz or sovkhoz, which for its part is obligated to supply the farmstead with a stipulated amount of feed and in this manner includes itself in the plan for output obtained.

This is a clever and clear system and one which has been tested by the experience of many kolkhozes and sovkhozes. But here there are also certain distortions. In some areas the kolkhozes and sovkhozes, in striving to conceal their lapses in the organization of public animal husbandry operations and by not concluding any agreements with the population, purchase the adult livestock from the population and subsequently resell them to the state with no maturing.

Typical methods are being employed to coerce the personnel into selling their livestock to a kolkhoz rather than to a cooperative procurement office. In some instances this results in surplus payments or in the purchase of meat at inflated prices and in others — direct coercion: the kolkhoz members are prohibited from selling the livestock at their own discretion. At times this is promoted by a lack of efficiency on the part of the cooperation specialists, by inability to accept the meat offered in a timely manner and by a desire to compete against other procurement specialists through the sale only of goods which are in high demand.

This type of negative phenomenon can be avoided only by displaying a truly state approach when organizing the procurements of products from peasant farmyards. Such an approach is required not only in connection with procurement policy but also in all relationships between the private plots and society.

In essence, a modern rural farmstead is viewed as an input for the country's agroindustrial complex. How well this work proceeds will be dependent to a considerable degree upon the success realized in carrying out the party's plans for solving the food problem.

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TILLING AND CROPPING TECHNOLOGY

UDC 631.4

TASKS OF SEL'KHOZKHIMIYA IN LIGHT OF MAY 1982 PLENUM DECISIONS

Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 11, Nov 82 pp 3-6

[Article by V. F. Nikonov, chairman of the All-Union Scientific Production Association Soyuzsel'khozkhimiya: "Tasks of Sel'khozkhimiya Association Concerning Improvement in Agrochemical Services to Agriculture in Light of the Decisions of the May 1982 Plenum of the CPSU Central Committee"]

[Text] An all-Union seminar-conference on problems of improvement in the country's agrochemical service--"Experience in Work in Kharkov Oblast on Increase in Soil Fertility and in Efficiency of Use of Chemicalization Agents"--was held in Kharkov on 17 to 20 August 1982.

Participants in the seminar became acquainted with the material and technical base and organization of the application of all chemicalization agents (mineral and organic fertilizers, chemical ameliorants, pesticides, feed preservatives and so forth) in three major associations of Sel'khozkhimiya: Pervomayskiy, Lozovskiy and Balakleyskiy. Highly productive equipment for the application of mineral and organic fertilizers and lime was demonstrated. A system of improved machines for the performance of all agrochemical operations was shown.

A number of reports and speeches by participants in the seminar and descriptions and specifications of prospective machines are published in abbreviated form in the sections "Decisions of the 26th CPSU Congress--Into Practice," "60th Anniversary of the Formation of the USSR," "Agrochemical Service" and "Fertilizers and Ameliorants."

The country's agrochemical service has undergone a 3-year period of development and in most Union republics and in many oblasts and krays has become an effective force in the struggle for an increase in soil fertility and in the yield of agricultural crops. The country's detachment of agrochemists has about 500,000 workers, employees, specialists and scientists. The scientific research unit of Soyuzsel'khozkhimiya [All-Union Scientific Production Association for Agrochemical Services to Agriculture] is represented by 15 institutes, 26 planning and surveying chemicalization stations, 15 plant protection stations, 10 toxicological laboratories and other subdivisions.

The technical equipment of this service is still small—11,000 tractors, [illegible] motor vehicles and 45,000 special machines—but an increased supply [illegible] makes it possible to annually raise the volume of agrochemical operations and other services by [illegible] percent. This year they will be fulfilled in the amount of [illegible] million tons and by the end of the five-year plan, [illegible]. In 1990 the share of the most important agrochemical operations performed directly by the Selkhozkhimiya subdivisions will make up from 30 to 40 percent of their total volume. Furthermore, different chemical products worth [illegible] million rubles will be delivered to kolkhozes and sovkhozes through associations and bases during the year. The interrelations between [illegible] and Selkhozkhimiya with [illegible] enterprises producing mineral fertilizers, pesticides, ameliorants and other products. To accept, preserve and promptly deliver them to farms is also a considerable daily concern.

The attention of planning and surveying chemicalization stations and agrochemical laboratories is concentrated to an ever greater extent on assistance to farms in the development and implementation of plans for an efficient use of fertilizers and ameliorants. Work on the agrochemical certification of fields has also been expanded and will be fully completed throughout the country during the current five-year plan. At present more than 3 million hectares of fields have certificates. A great deal has been done to develop standard chemicalization documents and overall programs for an increase in soil fertility at the level of oblasts, krays, rayons and specific farms.

In most oblasts and rayons of the Ukrainian, Belorussian, Lithuanian, Moldavian and Latvian SSR Selkhozkhimiya associations with the substantial support of party and soviet bodies have become reliable assistants of kolkhozes and sovkhozes in their activity connected with an increase in the production of agricultural products. Forms and methods of organization of agrochemical operations making it possible to more efficiently utilize the funds allocated by the state and to carry out a set of operations giving agricultural production greater stability and contributing to a larger yield per ruble of expenditures have been found. All the best [illegible] must be spread [illegible] of Soyuzsel'khozkhimiya. For example, the [illegible] experience of production and scientific agrochemical subdivisions in Belorussia was studied in 1985. There is something to learn there even now. In 198[illegible] the chairmen of republic, kray and oblast Selkhozkhimiya associations became acquainted with the work of the establishment of zonal interfarm and state agrochemical stations and centers, as well as with the organization of a high-quality performance of all agrochemical operations in many rayons of Lithuania. On the basis of the experience of [illegible] rayon in Moscow Oblast effective methods of organization and utilization of organic fertilizers were examined, on the basis of the experience of Sverdlovsk Oblast, an accelerated establishment of projects of the production and technical base from light prefabricated structures, on the basis of the example of [illegible], introduction of an integrated plant protection system and on the basis of experience in Latvia, a wide use of anhydrous ammonia.

With due regard for this experience schemes for the placement of the material and technical chemicalization base have been developed for all the country's administrative territories, work on its establishment has been enhanced, the forms of agrochemical services for the future have been determined. More than [illegible] new standard plans of chemicalization projects have been developed in a short time and ways to improve the quality of agrochemical operations have been found.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Indicator	Mineral fertilizers	Organic fertilizers	Soil liming	Chemical plant protection agents	Total amount
Production expenditures on purchase and application of fertilizers and on applying of additional harvest	-39	223	43	1456	8554
Value of increase in unreserved output	856	207	65	730	2072
Profit from use of chemicalization agents	3161	92	22	3650	11217
Outlays per ruble of expenditures, rubles:					
output	1.7	1.41	1.51	5.0	1.4
net profit	1.7	0.41	0.51	4.0	1.4

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

el knowledge centres will be established in the central area with a total area of 5,00 to 0,00 hectares for 0 million ha. The knowledge will be the basement of the waste and technical and a network of the interest of all here—by, average and small—size farm and consideration. Throughout the country —,00 kilocoze and soybean oil e central 1,00 production modification for commercialization, including 1,00 ton and inter—ven centers.

I most oldest, easy and technical discount loans have been examined e interactive bodies and have been approved. The construction of commercialization projects has been widely developed i Negoto Black. Approximately seven new mill i 1 and to 10 towns i the same time. Work i the first and Luvuso ASS and i Nsoko Nsiw. Mechanizations and two Black is proceeding satisfactorily. However the construction o sales throughout the country will last and this year i serial of the mills to sales.

I 19 the value o social investments was utilize o soybean knowledge 1 percent. and the loans for construction and installation work were utilized only 9 percent and of the commissioning of projects, 7 percent. I — months o the current year construction and installation work was utilized 9 percent and commissioning was ensured only 9 percent. I the Russian Federation 4 Black disfor commissioning loans. Throughout the Ukraine i — months o this year the loans for construction and installation work was utilized 10 percent. I the same time, however, the last year, 1 Black is not ensure it. Kazakhstan and Uzbekistan regularly discuss the loan for the construction o commercialization projects and associations i the Georgian, Tajik, Turkmen, Kirghiz and Moldavian SS pools work in this direction. A al the 1 years o the association i existence not a single warehouse for commercialization agents has been put into operation i Kirghizia. Latvians, Estonia, USS and Ukraine Black and i the Kazakhstan—Uzbek pools active and Caucasus—type autonomous republics.

A most n longer Siberia uncompleted work only, the construction o warehouses. I i the case o the Novosibirsk station i Ob—Irtysh Black, the Yekaterinburg station i Ufimsk Black, the Kazakh station i Omsk Black and the Karaganda station i Petropavlovsk Black and with other voluntary construction projects i Tenz. Northern, Western and Dnipro Black and i Altai Krai.

Summary i must and Soviet banks i Black and republics should aid "el knowledge" i the construction o commercialization project. Practice has shown that i al the country i cases, both i the south and i the north, they are recovered. i the most i — years. A great deal must be built—warehouses for mechanization, for storing amounts and pesticides, for liquid complex fertilizers and for plant protection agents. Bearing that here i Omsk i Kokchetav, Aktyubinsk and Petropavlovsk Kazakh Black should e i west Siberia and i the country.

Action requirements for the distribution and use o commercialization agents are not down i the low regions. For the production o products o relative and i i suggested that the use o chlorine and soybean oil mineral fertilizers and plant protection agents be not built. A irrigated and i i necessary to change over o natural programming. Appropriate experience has been accumulated not only i electric institutions, but also o many farms. I must be mastered.

[illegible]

citation not legible. It appears to be a short sentence about fertilizer application and crop yield, but the text is too faint to read with confidence.

Another paragraph, also illegible. It seems to discuss soil nutrients and planting, but the individual words cannot be made out.

A longer paragraph that appears to describe experimental results and comparisons between different treatments. Numbers and percentages are visible but the surrounding text is illegible.

Another paragraph, illegible.

A paragraph that appears to discuss methodology and statistical analysis. Some words are visible but the overall meaning cannot be recovered.

Another paragraph, illegible.

A paragraph that appears to discuss conclusions and recommendations. Some words are visible but the overall meaning cannot be recovered.

[illegible]

Dans cet article, nous allons voir comment utiliser la fonction `map()` en Python pour appliquer une fonction à chaque élément d'une liste, d'un tuple ou d'un autre itérable. Nous verrons également comment la combiner avec des fonctions lambda pour écrire du code plus concis et plus lisible.

Qu'est-ce que la fonction map() ?

La fonction `map()` prend en argument une fonction et un ou plusieurs itérables, puis applique cette fonction à chaque élément de l'itérable. Elle retourne un objet `map` qui est un itérateur. Pour obtenir une liste, il faut donc la convertir avec `list()`.

Voici un exemple simple qui double chaque nombre d'une liste :

```
nombres = [1, 2, 3, 4, 5]
doubles = list(map(lambda x: x * 2, nombres))
print(doubles)  # [2, 4, 6, 8, 10]
```

Dans cet exemple, la fonction lambda `lambda x: x * 2` est appliquée à chaque élément de la liste `nombres`. Le résultat est une nouvelle liste contenant les valeurs doublées.

Utiliser map() avec une fonction définie

Il est également possible d'utiliser `map()` avec une fonction définie avec `def`. Cela peut être utile lorsque la transformation est plus complexe qu'une simple expression.

```
def carre(x):
    return x ** 2

resultats = list(map(carre, [1, 2, 3, 4, 5]))
print(resultats)  # [1, 4, 9, 16, 25]
```

Notez que nous passons ici le nom de la fonction `carre` sans parenthèses. Nous ne voulons pas l'appeler immédiatement, mais la transmettre à `map()` pour qu'elle soit appelée sur chaque élément.

Combiner plusieurs itérables

`map()` peut également prendre plusieurs itérables en argument. La fonction doit alors accepter autant de paramètres qu'il y a d'itérables, et elle sera appelée avec un élément de chaque itérable à la fois.

```
noms = ["Alice", "Bob", "Charlie"]
ages = [25, 30, 35]
phrases = list(map(lambda n, a: f"{n} a {a} ans", noms, ages))
print(phrases)  # ['Alice a 25 ans', 'Bob a 30 ans', 'Charlie a 35 ans']
```

Si les itérables n'ont pas la même longueur, `map()` s'arrête dès que le plus court est épuisé. Les éléments en trop des plus longs sont simplement ignorés.

Quand préférer une compréhension de liste ?

Dans de nombreux cas, une compréhension de liste est plus lisible que `map()` combiné avec `lambda`. Par exemple, le code précédent pourrait s'écrire :

```
doubles = [x * 2 for x in nombres]
```

Cette écriture est souvent considérée comme plus naturelle en Python. Cependant, `map()` reste pertinent lorsque la fonction à appliquer existe déjà, ou lorsque l'on travaille avec des flux de données volumineux grâce à son évaluation paresseuse.

Conclusion

La fonction `map()` est un outil puissant pour transformer des données de manière fonctionnelle. Elle est particulièrement utile lorsque la fonction à appliquer est déjà définie ou lorsque l'on souhaite bénéficier de son évaluation paresseuse. Dans les autres cas, une compréhension de liste offre souvent une syntaxe plus claire et plus idiomatique.

In 1992 almost 1 million tons of silage will be treated with the use of preservatives and in 1993 a total of 10 million tons. Agriculture will annually receive 40,000 tons of preservatives. Therefore, it is necessary to accelerate the construction of standard warehouses for preservatives. Every ton of preserved silage represents 3 to 4 odder units. If we do not use and to protein more.

Method for aerosol application of liquid complex fertilizers enriched in the vegetative agricultural machine was known in the country farm department of Leningrad. It is not complicated and perfect well. Every year climates and economies will receive more and more liquid complex fertilizers and the aerosol method of their application. In connection with the surface method, increases the effectiveness of liquid complex fertilizers by 3 to 4 percent.

I would like to express our thanks to students. The A. Leontiev evolution of them will also in section incremental operations of better and of the best time.

We will be able to still the necessary effectiveness of the neutralization of industries mix with an overall performance of all operations connected with seed soil reclamation, with the use of plants and mineral fertilizers and with the protection of plant against pests, diseases and weeds.

Using the lime-ear for the average annual volume of work on plant protection should be as follows: pest and disease control. 12 million hectares; weed control. 19 million hectares; defoliation and desiccation. For million hectares, integrated protection systems have been applied and are widely introduced into practice. Chemical plants for 19 hectares of the most widespread pests have been determined. They make it possible to establish in what cases chemical treatment are justified economically. Great interest is manifested in the biological method of plant protection. In 191 it was applied on 3 million hectares. Work on determination fields for machines is also completed. Which will also in more accurately than the use of entities and in more widely apply their sources. However, the organization of the implementation of protective measures has not been brought up sufficiently, for example, the specialized mechanisms of laboratories perform about 3 percent of the total volume of work on plant protection and the remains work is done by the climates and workers themselves. Which reports provided with equipment, especially for the preparation of solutions. The result is as follows: pesticides are sometimes transported to warehouses of climates and workers. It is not always possible to use them fully and in the necessary time and place. The quality of work is not controlled and in most cases solutions are prepared in the most primitive way, in another thing—the bigger the number of processes, the bigger the certain exposed to the danger of infection. In the end lose value the main operations connected with plant protection should be attributed to the specialized links of incremental operations. Suggestions in this matter is contributed. It is necessary to more fully establish control, group and, in this area with its volume of work. Certain disinfection will be necessary equipment and to place the main operations connected with pesticides under the strictest control.

On plant protection series must more staunchly later and the methods in organization and application of seeds. In 192 the country climates and workers used ... million hectares of corn with seeds that underwent preinoculation. There is a dispute among scientists. It here is shortage from every of

[illegible]

[illegible]

[illegible]

The party set big, complex and responsible tasks for the country's agrochemical service. Their accomplishment will require intensive labor and we have no doubt that the detachment of [illegible] million workers in the subsector will do everything that is necessary to fulfill them and, thereby, will make its contribution to the realization of the USSR Food Program.

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